

WHAT IS CLAIMED IS:

1. A liquid crystal display element comprising:

a first electrode substrate having a first transparent substrate, a first electrode formed on said first substrate, and a first alignment layer formed on said first substrate so as to cover said first electrode;

a second electrode substrate having a second transparent substrate, a second electrode formed on said second substrate, and a second alignment layer formed on said second substrate so as to cover said second electrode; and

a light modulating layer of an anti-ferroelectric liquid crystal material which is sandwiched between said first and second electrode substrates covered with first and second alignment layers and which has a thresholdless voltage-transmittance characteristic,

wherein said first and second alignment layers are combined with said liquid crystal material so that a shifted angle between the extending direction and an optical axis of a *batonnet* is within  $\pm 1$  degree.

2. A liquid crystal display element as set forth in claim 1, wherein the optical axis of a *batonnet* deposited from said first electrode substrate is substantially coincident with the optical axis of a *batonnet* deposited from said second electrode substrate.

3. A liquid crystal display element as set forth in claim 1, wherein said first and second alignment layers have a surface tension of 49 dyn/cm to 53 dyn/cm.

4. A liquid crystal display element as set forth in claim 2, wherein said first and second alignment layers have a surface tension of 49 dyn/cm to 53 dyn/cm.

5. A liquid crystal display element as set forth in claim 1, wherein said first electrode substrate is an array substrate comprising: a plurality of scanning lines and signal lines, which are provided on said first substrate in the form of a matrix;

09739975 122000  
000227 5266260

switching elements, each of which is formed at a corresponding one of the intersections between said scanning lines and said signal lines, one end of each of said switching elements being connected to a corresponding one of said signal lines, each of said switching elements being open and closed in response to a signal of a corresponding one of said scanning lines; pixel electrodes, each of which is connected to the other end of a corresponding one of said switching elements; and said first alignment layer formed on said first substrate so as to cover said pixel electrodes, and

said second electrode substrate is a counter substrate comprising a counter electrode formed on said second substrate, and said second alignment layer formed on said second substrate so as to cover said counter substrate.

6. A liquid crystal display element as set forth in claim 2, wherein said first electrode substrate is an array substrate comprising: a plurality of scanning lines and signal lines, which are provided on said first substrate in the form of a matrix; switching elements, each of which is formed at a corresponding one of the intersections between said scanning lines and said signal lines, one end of each of said switching elements being connected to a corresponding one of said signal lines, each of said switching elements being open and closed in response to a signal of a corresponding one of said scanning lines; pixel electrodes, each of which is connected to the other end of a corresponding one of said switching elements; and said first alignment layer formed on said first substrate so as to cover said pixel electrodes, and

said second electrode substrate is a counter substrate comprising a counter electrode formed on said second substrate, and said second alignment layer formed on said second substrate so as to cover said counter substrate.

7. A liquid crystal display element as set forth in claim 3, wherein said first electrode substrate is an array substrate comprising: a plurality of scanning lines and signal lines, which

000221 5766760

are provided on said first substrate in the form of a matrix; switching elements, each of which is formed at a corresponding one of the intersections between said scanning lines and said signal lines, one end of each of said switching elements being connected to a corresponding one of said signal lines, each of said switching elements being open and closed in response to a signal of a corresponding one of said scanning lines; pixel electrodes, each of which is connected to the other end of a corresponding one of said switching elements; and said first alignment layer formed on said first substrate so as to cover said pixel electrodes, and

said second electrode substrate is a counter substrate comprising a counter electrode formed on said second substrate, and said second alignment layer formed on said second substrate so as to cover said counter substrate.

09739975 122000

Add A1